

**Amendments to the Claims:**

This listing of the claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-122 (Cancelled)

123 (Currently amended). A method for the preparation of a cell composition consisting essentially of human hematopoietic  $CD38^{-/low} CXCR4^{+}$  stem cells capable of migrating in response to stromal-derived factor 1 (SDF-1), said hematopoietic  $CD38^{-/low} CXCR4^{+}$  stem cells having the capacity of migrating to, and of engraftment and repopulation of, the bone marrow in a host, ~~wherein comprising:~~

stimulating  $CD38^{-/low} CXCR4^{-/low}$  stem cells are ~~stimulated~~ for up to five days with a suitable agent capable of converting  $CD38^{-/low} CXCR4^{-/low}$  into  $CD38^{-/low} CXCR4^{+}$  stem cells, thus converting the  $CD38^{-/low} CXCR4^{-/low}$  into  $CD38^{-/low} CXCR4^{+}$  stem cells, and wherein said suitable agent is selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells, and

sorting out those  $CD38^{-/low} CXCR4^{+}$  stem cells that migrate in response to SDF-1.

124 (Previously presented). The method according to claim 123, wherein the  $CD38^{-/low} CXCR4^{-/low}$  stem cells are stimulated with said suitable agent for 1-2 days.

125 (Previously presented). A method for increasing the population of hematopoietic CXCR4<sup>+</sup> stem cells for use in clinical transplantation, which comprises up-regulating surface CXCR4 expression of hematopoietic stem cells and sorting out those CXCR4<sup>+</sup> stem cells that migrate in response to stromal-derived factor (SDF-1), wherein said up-regulation is carried out by stimulation of a cellular population comprising hematopoietic CXCR4<sup>+</sup> and CXCR4<sup>-/low</sup> stem cells that have the potential to express CXCR4 on the cell surface, with a suitable agent, thus converting the CXCR4<sup>-/low</sup> into CXCR4<sup>+</sup> cells, and sorting out those CXCR4<sup>+</sup> stem cells that migrate in response to SDF-1, wherein the CXCR4<sup>-/low</sup> stem cells are stimulated for up to five days with a suitable agent capable of converting CXCR4<sup>-/low</sup> into CXCR4<sup>+</sup> stem cells, thus converting the CXCR4<sup>-/low</sup> into CD38<sup>-/low</sup> CXCR4<sup>+</sup> stem cells, and wherein said suitable agent is selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells.

126 (Previously presented). The method according to claim 125, wherein the CXCR4<sup>-/low</sup> stem cells are stimulated with said suitable agent for 1-2 days.

127 (Cancelled)

128 (Previously presented). A method in accordance with claim 123, wherein said suitable agent is selected from

the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

129 (Previously presented). The method according to claim 123, wherein said suitable agent is a member selected from the group consisting of SCF and a mixture of SCF and IL-6.

130 (Previously presented). A method in accordance with claim 125, wherein said suitable agent is selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

131 (Previously presented). The method according to claim 125, wherein said suitable agent is a member selected from the group consisting of SCF and a mixture of SCF and IL-6.